

## REMARKS

With respect to the provisional obviousness-type double patenting rejection, it is respectfully submitted that it is premature to respond until such time as one of the two cases is allowed. Only at that time would the scope of the claims be known and only at that time could a determination be made as to whether a terminal disclaimer will be needed. Therefore, deferral is respectfully requested.

With respect to the Section 112 rejection of claim 20, it is believed that the purpose of the additional execution circuit is recited in the claim -- "to execute threads of instructions." Reconsideration is requested.

Claim 1 *inter alia* calls for resuming execution of the first thread of instructions in response to receiving a message from the semaphore entity.

The claim is rejected over Kwok in Wenniger. The reference to Kwok teaches a passive semaphore. The reference to Wenniger teaches an active semaphore, but not one that causes execution to be resumed in response to a message it sends. To the contrary, in Wenniger all that happens is an interrupt is initiated, apparently to indicate that the resource is no longer used by a certain entity. But Wenniger is careful to point out that his interrupt does not enable the resource to be accessed. Instead, the resource requester must again poll the resource to determine whether or not the resource requester can use the resource because it is possible that some other requester obtained the resource in the meantime. Thus, Wenniger does not teach a system that enables execution to be resumed in response to a message from the semaphore entity.

At column 6, lines 34-38 Wenniger states that "Even where unique interrupt signals are generated, the receipt of the interrupt signal from a particular resource may not provide a guarantee that a resource will be available at the time the requesting process reattempts to gain control of the resource." Instead, the processor seeking control over the resource 110 initially queries hardware semaphore to determine if the resource is available and if the resource is unavailable, the processor then awaits receipt of the interrupt signal. See Wenniger at column 6, lines 17-22. Thus, in Wenniger there is no system to grant the resource to the requester when the resource becomes available, for example to the first requester in line.

Since claim 1 calls for resuming execution of the thread in response to receiving a message from the semaphore, Wenniger is insufficient, even together with Kwok, to meet the claimed

limitations. Wenniger must send an interrupt and then the requester must, in response, again, poll for the resource to see if the resource requester can now access the resource. The thing that went inactive in Wenniger is the request for the resource and it cannot be immediately reactivated or activated even because Wenniger must ask for the resource once again. Thus, even if Wenniger related to controlling threads, which he does not, a thread could not be activated without still another request for the resource.

Claim 12 calls for a semaphore entity to receive the semaphore request message from the execution entity and to selectively grant control of the semaphore in response to the semaphore request message, by transmitting a semaphore acknowledge message to an execution circuitry, wherein the execution circuitry, in response to receiving the semaphore message, removes the thread of instructions from the inactive state. Nothing of the sort happens in Wenniger or, for that matter, in Kwok. Therefore, reconsideration of the rejection is respectfully requested.

Claim 22 calls for means for maintaining the first thread of instructions in the inactive state until a message is received from a semaphore entity and means for resuming execution of the first thread of instructions in response to receiving the message from the semaphore entity. Again, this does not happen in either Kwok or Wenniger. Therefore, reconsideration is requested.

Claim 26 calls for semaphore entity coupled with the execution circuitry to receive the semaphore request message from the execution circuitry and to selectively grant control of the semaphore in response to the semaphore request message by transmitting the semaphore acknowledge message to the execution circuitry, wherein the execution circuitry, in response to receiving a semaphore acknowledge message, removes the thread of instructions from the inactive state. This never happens in Kwok or Wenniger. Moreover, there is no execution circuitry that removes the thread of instructions from the inactive state, much less in response to receiving an acknowledge message from a semaphore entity.

Therefore, reconsideration is requested.

Respectfully submitted,

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